

WHAT IS CLAIMED IS:

1. A fixing device comprising:

a heating body that rotates; and

an electromagnetic induction heater including a coil  
5 wound like a tube via a gap along an outer periphery of  
the heating body containing both ends in an axial  
direction orthogonal to a rotational direction of the  
heating body and both sides parallel with the axial  
direction so as to form a tubular part,

10 wherein at least a part of the heating body is  
positioned inside the tubular part of the coil.

2. The fixing device as claimed in claim 1, wherein  
the heating body comprises a heating roller, and the coil  
is wound so as to contain a center axis of the heating  
15 roller inside the tubular part of the coil.

3. The fixing device as claimed in claim 1, wherein  
the heating body comprises a film, and the coil is wound  
so that more than half of a heating area of the film is  
positioned inside the tubular part of the coil.

20 4. The fixing device as claimed in claim 1, wherein  
the heating body comprises a heating roller, and the  
tubular part of the coil has side walls opposed to in  
parallel with each other, the side walls extending along  
the both sides of the heating roller.

25 5. The fixing device as claimed in claim 1, wherein

the coil comprises a litz wire formed of a plurality of conductors each covered with an insulating film.

6. The fixing device as claimed in claim 1, further comprising a support extending like a tube along the outer  
5 periphery of the heating body containing both ends in the axial direction orthogonal to the rotational direction and both sides parallel with the axial direction,

wherein at least a part of the heating body is positioned inside the support and the coil is wound around  
10 an outer face of the support.

7. The fixing device as claimed in claim 6, wherein the support has heat insulating properties.

8. The fixing device as claimed in claim 6, wherein the support has nonmagnetism and nonconductivity.

15 9. The fixing device as claimed in claim 6, wherein the support has a bearing for the heating body to rotate.

10. The fixing device as claimed in claim 1, wherein portions of the coil are wound in curved shape, the portions extending from both ends of the coil in the axial  
20 direction orthogonal to the rotational direction to both sides of the coil parallel with the axial direction.

11. An image forming apparatus comprising:

a process unit including a developing section, a photosensitive member, and a charger;

25 a transfer member for transferring a developer on the

photosensitive member to a recording material to form an unfixed image on the recording material; and

a fixing device for heating and fixing the unfixed image onto the recording material,

5 wherein the fixing device comprises:

a heating roller that rotates around a center axis;

a support extending like a tube along an outer periphery of the heating roller containing both ends in an axial direction of the heating roller and both sides parallel with the axial direction; and

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a coil wound around an outer face of the support along the outer periphery of the heating roller containing the both ends in the axial direction of the heating roller and the both sides parallel with the axial direction.

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12. A fixing device comprising:

a heating body that rotates;

a pressurization roller that rotates in association with the heating body, the pressurization roller and the heating body nipping and transporting a recording material to fix an unfixed developer onto the recording material;

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an electromagnetic induction heater including a coil wound like a tube via a gap along an outer periphery of

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the heating body containing both ends in an axial direction orthogonal to a rotational direction of the heating body and both sides parallel with the axial direction so as to form a tubular part, at least a part of the heating body being positioned inside the tubular part of the coil; and

a driving device including a drive source having a rotation shaft outside the coil, the driving device transferring a drive force from the drive source via rotation transfer section to the heating body and the pressurization roller.

13. The fixing device as claimed in claim 12, wherein the rotation transfer section transfers rotation force of the drive source to the pressurization roller via a gear connecting a rotation shaft of the pressurization roller and the rotation shaft of the drive source and further transfers rotation force of the pressurization roller to the heating body.

14. The fixing device as claimed in claim 12, wherein the heating body comprises a heating roller, and the rotation transfer section transfers rotation force of the drive source to the heating roller via a belt connecting the heating roller and the rotation shaft of the drive source and further transfers rotation force of the heating roller to the pressurization roller.

15. The fixing device as claimed in claim 14,  
wherein the belt is made of a heat insulating material.

16. The fixing device as claimed in claim 12,  
wherein the pressurization roller and the heating body are  
5 pressed against each other to rotate from one to the other  
in conjunction.

17. The fixing device as claimed in claim 12,  
wherein the heating body comprises a heating roller, and  
the fixing device comprises a gear for connecting the  
10 pressurization roller and the heating roller and rotation  
force is transferred between the pressurization roller and  
the heating roller via the gear.

18. The fixing device as claimed in claim 12,  
wherein each of the pressurization roller and the heating  
15 body comprises a non-image formation area portion not  
nipping the recording material, and the rotation transfer  
section presses the pressurization roller and the heating  
body against each other in the non-image formation area  
portions.

20 19. The fixing device as claimed in claim 18,  
wherein the non-image formation area portion of the  
pressurization roller has a larger outer diameter than  
that of an image formation area portion of the  
pressurization roller.

25 20. The fixing device as claimed in claim 18,

wherein the heating body comprises a heating roller, and the non-image formation area portion of the heating roller has a larger outer diameter than that of an image formation area portion of the heating roller.

5           21. The fixing device as claimed in claim 18, wherein the heating body comprises a film, and the non-image formation area portion of the film has a larger thickness than that of an image formation area of the film.

10           22. The fixing device as claimed in claim 18, wherein the non-image formation area portion is formed with a non-slip portion on a surface thereof so as to increase a friction coefficient.

15           23. The fixing device as claimed in claim 22, wherein the non-image formation area portion has a surface formed in a large face roughness degree.

24. The fixing device as claimed in claim 12, further comprising a support for supporting the coil and the heating body.

20           25. An image forming apparatus comprising:  
a process unit including a developing section, a photosensitive member, and a charger;

a transfer member for transferring a developer on the photosensitive member to a recording material to form an unfixed image on the recording material; and

25           a fixing device for heating and fixing the unfixed

image onto the recording material,

wherein the fixing device comprises:

a heating body that rotates;

5 a pressurization roller that rotates in  
association with the heating body, the  
pressurization roller and the heating body nipping  
and transporting a recording material to fix the  
unfixed developer onto the recording material;

10 an electromagnetic induction heater including a  
coil wound like a tube via a gap along an outer  
periphery of the heating body containing both ends  
in an axial direction orthogonal to a rotational  
direction of the heating body and both sides  
parallel with the axial direction so as to form a  
15 tubular part, at least a part of the heating body  
being positioned inside the tubular part of the  
coil; and

20 a driving device including a drive source having  
a rotation shaft outside the coil, the driving  
device transferring a drive force from the drive  
source via rotation transfer section to the  
heating body and the pressurization roller.

26. A fixing device comprising:

25 a heating roller having a cylindrical support part  
and magnetic metal foil of a strip wound around an outer

peripheral surface of the cylindrical support part;

a pressurization roller pressed against the heating roller; and

an electromagnetic induction heater that externally  
5 heats the heating roller.

27. The fixing device as claimed in claim 26, wherein the cylindrical support part is formed of an elastic substance.

28. The fixing device as claimed in claim 26,  
10 wherein the cylindrical support part is made of a heat insulating material.

29. The fixing device as claimed in claim 26, wherein the magnetic metal foil includes both side edges along a length direction thereof, both the side edges  
15 having inclined faces inclined with respect to a thickness direction of the magnetic metal foil, and the magnetic metal foil is wound around the cylindrical support part so that the inclined faces overlap in the thickness direction.

30. The fixing device as claimed in claim 26,  
20 wherein on the outer peripheral surface of the cylindrical support part, a gap between both adjacent side edges of the magnetic metal foil is filled with a conductive filler.

31. The fixing device as claimed in claim 26, wherein on the outer peripheral surface of the cylindrical  
25 support part, conductive tape is wound along a gap between



both adjacent side edges of the magnetic metal foil to conduct the adjacent side edges.

32. The fixing device as claimed in claim 26, wherein the magnetic metal foil is wound around the outer  
5 peripheral surface of the cylindrical support part so that edge parts of the magnetic metal foil in a width direction thereof overlap with each other.

33. The fixing device as claimed in claim 26, wherein the magnetic metal foil comprises a first layer  
10 wound around the surface of the cylindrical support part in a spiral fashion and a second layer wound around a top face of the first layer in a different spiral fashion.

34. The fixing device as claimed in claim 26, wherein a heat conduction layer is formed on the surface  
15 of the magnetic metal foil.

35. The fixing device as claimed in claim 26, wherein a release layer of the developer is formed on the surface of the heating roller.

36. An image forming apparatus comprising:  
20 a process unit including a developing section, a photosensitive member, and a charger;

a transfer member for transferring a developer on the photosensitive member to a recording material to form an unfixed image on the recording material; and

25 a fixing device for heating and fixing the unfixed

image onto the recording material,

wherein the fixing device comprises:

5        a heating roller having a cylindrical support  
part and magnetic metal foil of a strip wound  
around an outer peripheral surface of the  
cylindrical support part;

      a pressurization roller pressed against the  
heating roller; and

10       an electromagnetic induction heater that  
externally heats the heating roller.